

WHAT IS CLAIMED IS:

1. A process for producing a polyalkyl-substituted aromatic aldehyde by a formylation of a polyalkyl-substituted aromatic compound having three to five C<sub>1</sub>-C<sub>3</sub> alkyl groups with carbon monoxide in the presence of hydrogen fluoride and boron trifluoride, wherein the amount of hydrogen fluoride is 2.5 to 5.0 mol and the amount of boron trifluoride is 1.0 to 2.5 mol, each based on one mole of the polyalkyl-substituted aromatic compound.
2. The process according to claim 1, wherein the formylation is conducted at -30 to 40°C under a pressure of 1 to 3 MPa.
3. The process according to claim 1, wherein the polyalkyl-substituted aromatic compound is at least one compound selected from the group consisting of 1,3,5-trialkyl-substituted aromatic compounds, 1,2,3,5-tetraalkyl-substituted aromatic compounds, 1,2,4,5-tetraalkyl-substituted aromatic compounds and 1,2,3,4,5-pentaalkyl-substituted aromatic compounds.
4. The process according to claim 1, wherein the polyalkyl-substituted aromatic compound is a 1,3,5-trialkyl-substituted aromatic compound.
5. The process according to claim 4, wherein the 1,3,5-trialkyl-substituted aromatic compound is mesitylene.